

High Current Power MOSFET

	V_{DSS}	I_{D25}	$R_{DS(on)}$
IXTN 58N50	500 V	58 A	85 mΩ
IXTN 61N50	500 V	61 A	75 mΩ

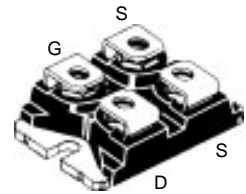
N-Channel Enhancement Mode



Preliminary Data

Symbol	Test Conditions	Maximum Ratings
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500 V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1.0\text{ M}\Omega$	500 V
V_{GS}	Continuous	± 20 V
V_{GSM}	Transient	± 30 V
I_{D25}	$T_C = 25^\circ\text{C}$	IXTN 58N50 58 A IXTN 61N50 61 A
I_{DM}	$T_C = 25^\circ\text{C}$ Pulse width limited by T_{JM}	IXTN 58N50 232 A IXTN 61N50 244 A
P_D	$T_C = 25^\circ\text{C}$	625 W
T_J		-40 ... +150 $^\circ\text{C}$
T_{JM}		150 $^\circ\text{C}$
T_{stg}		-40 ... +150 $^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1$ minute $t = 1$ s	2500 V~ 3000 V~
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.
Weight		30 g

miniBLOC, SOT-227 B
E153432



G = Gate
S = Source
D = Drain

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- International standard package
- Isolation voltage 3000V (RMS)
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (<100 pF)
- - reduced RFI
- Low package inductance (< 10 nH)
- - easy to drive and to protect
- Aluminium Nitride Isolation
- - increased current ratings

Applications

- DC choppers
- AC motor speed controls
- DC servo and robot drives
- Uninterruptible power supplies (UPS)
- Switched mode and resonant mode power supplies

Advantages

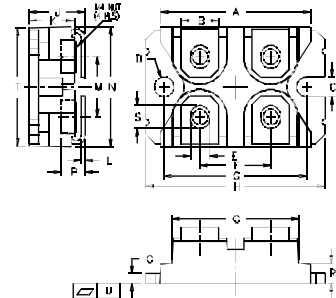
- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)
		Min. Typ. Max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 5\text{ mA}$	500 V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 12\text{ mA}$	1.7 V
I_{GSS}	$V_{GS} = \pm 20\text{ V DC}$, $V_{DS} = 0$	± 200 nA
I_{DSS}	$V_{DS} = 0.8 V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$, $T_J = 125^\circ\text{C}$	500 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$	58N50 85 mΩ 61N50 75 mΩ

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$, pulse test	20	30	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		11000	pF
C_{oss}			1550	pF
C_{rss}			225	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 50\text{ A}$ $R_G = 1\ \Omega$ (External)		30	ns
t_r			60	ns
$t_{d(off)}$			100	ns
t_f			50	ns
Q_g	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = I_{D2}$		420	nC
Q_{gs}			55	nC
Q_{gd}			160	nC
R_{thJC}		0.05	0.20 K/W	
R_{thCK}			K/W	

Source-Drain Diode
Ratings and Characteristics
 ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Conditions	Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			61 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			244 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$			1.5 V
t_{rr}	$I_F = 50\text{ A}, di/dt = -100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			800 ns

miniBLOC, SOT-227 B


M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

IXYS reserves the right to change limits, test conditions, and dimensions.

 IXYS MOSFETS and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715
 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025